

CONTACT: a non-randomised feasibility study of bluetooth-enabled wearables for contact tracing in UK care homes during the COVID-19 pandemic

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Publication

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Abstract

Background

The need for effective non-pharmaceutical infection prevention measures such as contact tracing in pandemics remains in care homes, but traditional approaches to contact tracing are not feasible in care homes. The CONTACT intervention introduces Bluetooth-enabled wearable devices (BLE wearables) as a potential solution for automated contact tracing. Using structured reports and reports triggered by positive COVID-19 cases in homes, we fed contact patterns and trends back to homes to support better-informed infection prevention decisions and reduce blanket application of restrictive measures. This paper reports on the evaluation of feasibility and acceptability of the intervention prior to a planned definitive cluster randomised trial of the CONTACT BLE wearable intervention.

Methods

CONTACT was a non-randomised mixed-method feasibility study over 2 months in four English care homes. Recruitment was via care home research networks, with individual consent. Data collection methods included routine data from the devices, case report forms, qualitative interviews (with staff and residents), field observation of care, and an adapted version of the NoMaD survey instrument to explore implementation using Normalisation Process Theory. Quantitative data were analysed using descriptive statistical methods. Qualitative data were thematically analysed using a framework approach and Normalisation Process Theory. Intervention and study delivery were evaluated against predefined progression criteria.

Results

Of 156 eligible residents, 105 agreed to wear a device, with 102 (97%) starting the intervention. Of 225 eligible staff, 82% (n = 178) participated. Device loss and damage were significant: 11% of resident devices were lost or damaged, ~50% were replaced. Staff lost fewer devices, just 6%, but less than 10% were replaced. Fob wearables needed more battery changes than card-type devices (15% vs. 0%). Structured and reactive feedback was variably understood by homes but unlikely to be acted on. Researcher support for interpreting reports was valued. Homes found information useful when it confirmed rather than challenged preconceived contact patterns. Staff privacy concerns were a barrier to adoption. Study procedures added to existing work, making participation burdensome. Study participation benefits did not outweigh perceived burden and were amplified by the pandemic context. CONTACT did not meet its quantitative or qualitative progression criteria.

Conclusions

CONTACT found a large-scale definitive trial of BLE wearables for contact tracing and feedback-informed IPC in care homes unfeasible and unacceptable — at least in the context of shifting COVID-19 pandemic demands. Future research should co-design interventions and studies with care homes, focusing on successful intervention implementation as well as technical effectiveness.

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